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ABSTRACT

This paper examines some of the implications, including geographic and residential considerations, of adopting a relative poverty defintion which would fix the poverty threshold at some proportion of median income. The major virtues of such a definition are that it is explicitly relative and it is easy to understand and construct. The major flaw is that, in the absence of a major shift in the income distribution, the proportion of persons in poverty would remain constant over time. The evidence in this paper indicates that such a poverty measure would have the effect of identifying as poor a nearly fixed proportion of the population. In the absence of significant shifts in the income distribution, the proportion of the population in poverty would not be lowered by a growth in the average level of real income. Using a definition based on median income would also allow the possibility of introducing inter-area differentials through the use of sub-national medians. However, even though the application of a single national poverty standard causes some inequities, the data suggests that the adoption of a poverty standard based on sub-national medians would create its own inequities. The only realistic way of introducing inter-area differentials into a poverty definition is to develop a survey which will produce acceptable data on inter-area differences in living costs. (Author/AM)

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THE MEASURE OF POVERTY

Technical Paper XIII

Relative Poverty

By: Jack McNeil
Bureau of the Census

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U.S. Department of Health, Education, and Welfare

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November 18, 1976

Virginia Trotter
Assistant Secretary for Education
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and Welfare

William A. Morrill
Assistant Secretary for Planning
and Evaluation
Department of Health, Education,
and Welfare

I am pleased to forward Technical Paper XIII, "Relative Poverty". It contains supporting data for the report entitled The Measure of Poverty which was prepared in compliance with section 823 of the Education Amendments of 1974. This paper was produced by Jack McNeil, Bureau of the Census. It examines some of the implications, including geographic and residential considerations, of adopting a relative poverty definition which would fix the poverty threshold at some proportion of median income.

Bette Mahoney

Bette Mahoney
Chairman
Poverty Studies Task Force

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PREFACE

> Section 823 of the Education Amendments of 1974 (PL 93-380) requires a thorough study of the manner in which the relative measure of poverty for use in the financial assistance program, authorized by Title I of the Elementary and Secondary Education Act of 1965, may be more accurately and currently developed.

That financial assistance program is administered by the Commissioner of Education, through the Office of Education, Department of Health, Education, and Welfare. An important feature is the use of a formula prescribed by Section 103 of the Elementary and Secondary Education Act for the annual distribution of Federal funds to school districts. A significant factor in the formula is the number of school-age children 5 to 17 in poor families within each school district. The measure of poverty which is used, and which is the subject of the study mandated by Section 823, is the Federal government's official statistical definition of poverty (also known as the Orshansky, OMB, Census Bureau, or Social Security poverty lines).

Other work related to poverty measurement has been called for in recent legislative acts. In the Comprehensive Employment and Training Act, the Secretary of Labor is directed to develop and maintain comprehensive household budget data at different levels of living, including a "level of adequacy." Any such review of the level of adequacy must necessarily be closely related to measures of poverty. The Housing and Community Development Act of 1974 gives the Secretary of HUD authority to adjust the poverty measure to reflect local variations in the cost of living. The Conference Report accompanying it directs the Secretary to develop or obtain data with respect to the "extent of poverty" by metropolitan areas and to submit such data to the Congress as part of a March 31, 1977, report.

Because of the broad scope of the subject matter, coverage of the study of the measure of poverty mandated by Section 823 of the Education Amendments of 1974 was extended to include implications of the study findings for the poverty-related programs of all affected Federal departments and agencies. The Title I program of the Elementary and Secondary Education Act was given the most detailed treatment, to meet the legislatively-mandated specifications for the study as well as to serve as a primary example of application of the concepts of poverty measurement to Federal programs. The findings of the study are published in a report entitled, "The Measure of Poverty." An important objective of the study was full discussion and documentation of the major elements of currently applied and potentially usable poverty measures. Material containing essential supporting documentation for the study was assembled as technical papers. These have been written to stand alone as complete technical treatments of specific subjects.

The study was performed under the direct guidance of a Poverty Studies Task Force of the Subcommittee on the Education of the Disadvantaged and Minorities, Federal Inter-Agency Committee on Education. Technical papers were prepared at the request of, under the direction of, and subject to review by the Task Force members. Some papers are primarily the work of one or two persons; these are attributed to their authors. Others result from the collective input of Task Force members or advisors and no specific attribution is given except to the Task Force, as a whole.

The following listings show members of the Poverty Studies Task Force by appropriate Federal departments and agencies, and the titles and authors of the technical papers.

This report contains Technical Paper XIII, Relative Poverty. It was prepared by Jack McNeil, Bureau of the Census.

To obtain copies of the report, "The Measure of Poverty," or any of the technical papers, please write to:

Office of the Assistant Secretary for Planning and Evaluation
Department of Health, Education, and Welfare
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Federal Interagency Committee on Education
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TECHNICAL PAPERS

I.	Documentation of Background Information and Rationale for Current Poverty Matrix	Mollie Orshansky Social Security Administration
II.	Administrative and Legislative Usages of the Terms "Poverty," "Low Income," and Other Related Terms	Poverty Studies Task Force with assistance from Ellen Kraus
III.	A Review of the Definition and Measurement of Poverty	Urban Systems Research and Engineering, Inc.
IV.	Bureau of Labor Statistics Family Budgets Program	Mark Sherwood Bureau of Labor Statistics
V.	The Consumer Price Index	Jill King Mathematica, Inc.
VI.	Wealth and the Accounting Period in the Measurement of Means	Nelson McClung and Eugene Steuerle Department of the Treasury
VII.	In-kind Income and the Measurement of Poverty	Janice Peskin Health, Education, and Welfare
VIII.	The 1972-73 Consumer Expenditure Survey	Jill King Mathematica, Inc.
IX.	Inventory of Federal Data Bases Related to the Measurement of Poverty (a) Non-Census Data Bases (b) Census Data Bases	Connie Citro, Mathematica, Inc. Bureau of the Census
X.	Effect of Using a Poverty Definition Based on Household Income	Jack McNeill, Doug Sater, Arno Winard Bureau of the Census
XI.	Update of the Orshansky Index	Mollie Orshansky Social Security Administration
XII.	Food Plans for Poverty Measurement	Betty Peterkin Department of Agriculture
XIII.	Relative Poverty	Jack McNeil Bureau of the Census
XIV.	Relative Measure of Poverty	Stanley Stephenson Health, Education, and Welfare
XV.	Analytic Support for Cost-of-Living Differentials in the Poverty Thresholds	Thomas Carlin Department of Agriculture
XVI.	Implications of Alternative Measures of Poverty on Title I of the Elementary and Secondary Education Act	Abdul Khan and Herman Miller Health, Education, and Welfare
XVII.	The Sensitivity of the Incidence of Poverty to Different Measures of Income: School-age Children and Families	Survey Research Center University of Michigan
XVIII.	Characteristics of Low-Income Populations Under Alternative Poverty Definitions	Lawrence Brown Health, Education, and Welfare

INTRODUCTION

For some time now, it has been official practice to classify persons as being either in or out of poverty. In the early 1960's, the Council of Economic Advisors adopted the rule that families with annual incomes below $3,000 and unrelated individuals with annual incomes below $1,500 were considered to be in poverty. This definition soon gave way to one developed by Mollie Orshansky at the Social Security Administration. 1/ The Orshansky definition, which with some modifications is now the official Federal definition, involved three basic elements. First, the amount of income required for food for families of different size and composition was defined to be the cost of an economy food plan developed at the Department of Agriculture. Second, for families of three or more, the amount of income required for nonfood items was defined to be twice the amount required for food (a higher multiplier was used for one and two person families). This figure was based on the 1955 Food Consumption Survey which measured the amount spent on food during a seven day period in the spring of 1955. The survey found that, for families of two or more persons, the average annual rate of food expenditures was one-third as great as average 1954 money income after taxes. Finally, the poverty thresholds were made to vary by whether or not the family was a farm family.

The Orshansky definition has been used to make estimates of the incidence of poverty as far back as 1959. The most recent published estimate is for 1975. The poverty thresholds are kept fixed in terms of real dollars by updating them annually by changes in the consumer price index. Because real median family income has increased over time, the income of a family at the poverty threshold has dropped further and further behind the income of a median income family. In 1964 a four-person family at the poverty threshold had about 42 percent of the income of a median income family; by 1974, the proportion had dropped to about one-third.

Many persons would argue that poverty should not be defined in absolute terms. Some good evidence that the majority of persons view the concept of poverty in relative terms in the Gallup Poll cited by Robert Kilpatrick in "The Income Elasticity of the Poverty Line." 2/ Kilpatrick noted that the poll supported the hypothesis that growth in average income increases the perceived poverty line, but by less than the proportional increase in average income.

Although the poverty thresholds have remained fixed in terms of real dollars, the official Federal definition is not an absolute definition. It can be updated on the basis of new food plans and/or the multiplier can be recalculated. Proposals to update the official definition by adopting a new food plan or by recalculating the multiplier bring into focus the subjective nature of the current definition. Any definition of what constitutes poverty must be subjective, of course, but the subjectivity of the current definition is not as apparent as it might be. The food plans themselves are subjective, but it is the concept of the multiplier that deserves the most attention. As noted above, the multiplier makes the amount of income required to buy an adequate level of nonfood items a function of the percent of income that families,

on average, spend on food. The rule is convenient and depending upon the source of the data, can produce a poverty level that seems reasonable, but the rule is also arbitrary. It has been proposed that the value be updated by using data from the 1965 Food Consumption Survey. The proposal raises the issue of data comparability. The 1955 survey asked very detailed income questions and the 1965 survey had only a single question which asked respondents to choose an income interval. This latter method is known to produce an income estimate that is biased downward and will, therefore, produce an estimate of the multiplier which is biased downward.

The material below considers some of the implications of adopting a relative poverty definition which would fix the poverty threshold at some proportion of median income. The first person to propose such a definition in print was apparently Victor Fuchs in his 1965 article entitled "Toward a Theory of Poverty." 3/ The major virtues of such a definition are that it is explicitly relative and it is easy to understand and construct. The major flaw is that, in the absence of a major shift in the income distribution, the proportion of persons in poverty would remain constant over time.

POVERTY RATES UNDER RELATIVE DEFINITION

In his article, Fuchs set the poverty threshold at one-half of median family income, a figure he viewed as arbitrary but reasonable. Table 1 shows estimates, based on interpolations of published data, of the percent of families with incomes of less than one-half of median family income from 1947 to 1974. The table also shows the official estimates of the percent of families in poverty from 1959 to 1974.

The table shows no significant trend in the proportion of families with incomes of less than one-half of the median. Over the nearly thirty-year period, the definition based on median income would be roughly equivalent to one which defined as poor those families in the lowest 20 percent of the income distribution.

In the remainder of this paper, the definition suggested by Fuchs has been modified in order to assign different poverty thresholds to different family types (including unrelated individuals). The modification involved the following steps:

- Define the basic family as male head, four-person non-farm family with two related children.
- Calculate the poverty threshold for the basic family equal to one-half the median income of all basic families in the population.
- Use an equivalency scale to determine a poverty threshold for other family types. The scale used was the one

used in the official definition which identifies 124 family types based on size, number of children, farm or non-farm residence, and age and sex of the head.

TABLE 1. Percent of Families with Income Below One-Half the Median Family Income and Percent of Families in Poverty under the Official Definition: 1947 To 1974

Year	Percent of families With incomes below One-half the median	Percent of families In poverty
1947	18.8	NA
1948	19.1	NA
1949	20.1	NA
1950	19.9	NA
1951	18.9	NA
1952	18.7	NA
1953	19.8	NA
1954	20.7	NA
1955	19.9	NA
1956	19.4	NA
1957	19.8	NA
1958	20.0	NA
1959	20.0	18.5
1960	20.1	18.1
1961	20.3	18.1
1962	19.7	17.2
1963	19.7	15.9
1964	20.1	15.0
1965	19.8	13.9
1966	19.2	12.7
1967	18.7	11.4
1968	18.3	10.0
1969	18.5	9.7
1970	19.0	10.1
1971	19.3	10.0
1972	19.4	9.3
1973	19.3	8.8
1974	19.4	9.2

Table 2 shows poverty rates in selected areas for the years 1967, 1972, and 1974, under seven alternative poverty definitions.

Definition	Description
1. Official	The current official Federal definition of poverty.

2.	1/2 U.S. median	The modified Fuchs definition described above.
3.	1/3 U.S. median	Same as 2 except one-third the median replaces one-half the median.
4.	1/2 Metro/nonmetro median	One-half of either metropolitan U.S. median family income or nonmetropolitan U.S. median family income depending upon whether the unit family resides in metropolitan or nonmetropolitan area.
5.	1/3 Metro/nonmetro median	Same as 4 except one-third of the median replaces one-half of the median.
6.	1/2 Federal region median	One-half of the median income of families residing in the same Federal region.
7.	1/3 Federal region median	Same as 6 except one-third of the median replaces one-half of the median.

Under the official definition, the proportion of U.S. families in poverty declined sharply from 1967 to 1972, but changed little from 1972 to 1974. Under the definitions based on median income, the U.S. poverty rate for families was rather stable over the period, but the 1972 rate was somewhat higher than the rates for 1967 and 1974.

The official 1974 poverty threshold for a basic family was $5000 in 1974, only slightly higher than one-third of the median income of a basic family.

All seven definitions show that the incidence of poverty in metropolitan areas has increased relative to the incidence in nonmetropolitan areas. Official data for the ten Federal regions are not available for 1967, but from 1972 to 1974 the official data do show that the proportion of families in poverty increased in the New York region and decreased in the Atlanta region. The six alternative measures show a New York region increase and an Altanta region decrease for the period 1967 to 1974.

GEOGRAPHIC AND RESIDENTIAL CONSIDERATIONS IN A POVERTY DEFINITION

The first three definitions shown in Table 2 apply one set of poverty thresholds to all U.S. families. They do not make any distinctions based on geography. One of the interesting possibilities of a definition based on median income is the opportunity to select a subnational reference population. That is, poverty thresholds in a particular region can be made a

TABLE 2: Percent of Families in Poverty under Seven Alternative Poverty Definitions: 1967, 1972, and 1974

Region and year	Official		1/2 U.S. median		1/3 U.S. median		1/2 metro/nonmetro median		1/3 metro/nonmetro median		1/2 Federal region median		1/3 Federal region median	
	Poverty Threshold For base Family	Percent of Families In poverty	Poverty Threshold For base Family	Percent of Families In poverty	Poverty Threshold For base Family	Percent of Families In poverty	Poverty Threshold For base Family	Percent of Families In poverty	Poverty Threshold For base Family	Percent of Families In poverty	Poverty Threshold For base Family	Percent of Families In poverty	Poverty Threshold For base Family	Percent of Families In poverty
United States:														
1967	$3,383	11.4	$4,275	16.6	$2,850	8.0	M	16.5	M	7.9	F	16.3	F	7.8
1972	4,239	9.3	6,115	17.0	4,077	8.5	M	16.9	M	8.6	F	17.0	F	8.7
1974	5,000	9.2	7,093	16.5	4,728	8.4	M	16.0	M	8.2	F	16.3	F	8.3
Metropolitan United States:														
1967	3,383	8.5	4,275	13.1	2,850	6.0	$4,526	14.7	$3,017	6.7	F	13.4	F	6.1
1972	4,239	8.0	6,115	14.7	4,077	7.4	6,500	16.3	4,333	8.3	F	15.0	F	7.7
1974	5,000	8.1	7,093	14.3	4,728	7.5	7,500	15.5	5,000	8.1	F	14.5	F	7.6
Nonmetropolitan United States:														
1967	3,383	16.6	4,275	23.2	2,850	11.9	3,860	20.0	2,573	10.1	F	22.0	F	11.0
1972	4,239	12.3	6,115	22.0	4,077	11.5	5,388	18.2	3,592	9.3	F	21.2	F	10.9
1974	5,000	11.3	7,093	21.1	4,728	10.3	6,300	17.1	4,200	8.3	F	20.2	F	9.8
New York Federal region:														
1967	3,383	NA	4,275	12.2	2,850	5.3	M	13.0	M	5.7	$4,500	13.2	$3,000	5.9
1972	4,239	6.6	6,115	13.2	4,077	6.0	M	13.9	M	6.7	6,500	14.6	4,333	7.1
1974	5,000	8.1	7,093	14.9	4,728	7.2	M	15.3	M	8.0	7,500	16.1	5,000	8.1
Atlanta Federal region:														
1967	3,383	NA	4,275	27.6	2,850	14.8	M	26.7	M	14.0	3,666	22.3	2,444	11.8
1972	4,239	13.4	6,115	23.8	4,077	12.5	M	22.7	M	11.7	5,625	21.1	3,750	11.1
1974	5,000	12.8	7,093	22.8	4,728	11.8	M	21.0	M	10.9	6,500	19.7	4,333	10.2
Chicago Federal region:														
1967	3,383	NA	4,275	12.8	2,850	5.8	M	12.5	M	5.6	4,500	14.0	3,000	6.2
1972	4,239	6.7	6,115	12.3	4,077	6.2	M	12.4	M	6.2	6,200	12.6	4,133	6.4
1974	5,000	6.5	7,093	11.5	4,728	5.9	M	11.3	M	5.8	7,500	12.7	5,000	6.5

NA: Not Available.
M: Poverty threshold depends on whether family lives in a metropolitan or nonmetropolitan area.
F: Poverty threshold depends on which Federal region the family lives in.

function of the median family income in that region. Definitions 4, 5, 6, and 7 show poverty rates based on subnational medians.

Definitions 4 and 5 have two sets of thresholds; one for families residing in metropolitan areas and the other for families residing in nonmetropolitan areas. Under definition 5, the 1974 poverty threshold for a basic family was $5000 if the family resided in a metropolitan area, and $4200 if the family resided in a nonmetropolitan area. Definitions 6 and 7 have ten sets of poverty thresholds, one for each of the ten Federal regions. (Table 2 shows data for only three of the Federal regions.) Under definition 7 the 1974 poverty threshold for a basic family was $5000 if the family lived in the New York Federal region, and $4333 if the family lived in the Atlanta Federal region.

The use of subnational medians reduces the interarea differences which exist under the official measure or which would exist under any single national standard. For example, under the official definition, the ratio of the 1974 family poverty rate in metropolitan areas to the rate in nonmetropolitan areas was 0.72, but under defintion 4 the ratio would have been 0.91, and under definition 5 the ratio would have been 0.98. In 1974, the ratio of the New York Federal region family poverty rate to the Atlanta Federal region rate was 0.63 under the official definition, 0.82 under defintion 6, and 0.79 under definition 7.

There is a widespread concern that a national poverty standard is inappropriate because the cost of living apparently varies by region and by degree of urbanization. The adoption of a definition based on subnational medians would be a relatively simple way of introducing geographic differentials into a poverty standard. The case for a definition based on subnational medians would be strengthened if it could be shown that interarea differences in median income were associated with interarea differences in living costs. Unfortunately, the question of the existence and extent of cost of living differentials are extremely difficult to establish because of conceptual difficulties and because of a lack of data.

The conceptual difficulties in examining interarea differences in living costs are very great. The question to be answered is, how much would it cost an average family to achieve an identical standard of living in various cities or areas? What set of incomes, applicable to each area in question, would allow the average family to be indifferent in its choice of a place to live? Of course, the question ignores the fact that no two families have identical tastes. The perceived interarea cost of living differentials will differ between and among families according to the characteristics of the families. A second critical consideration is the difficulty of measuring the costs and benefits of the non-market factors (climate, density, schooling, safety, etc.) which affect welfare.

TABLE 3. Median Family Income and the BLS Intermediate Index of Comparative Costs: 1969

Area	Median Family Income	Cost of living Index based on Total budget Costs	Median family Income adjusted For living costs
Urban United States	$10,196	100	$10,196
Metropolitan	10,516	102	10,310
Nonmetropolitan	8,573	90	9,526
Rural United States	8,053	(NA)	(NA)
Northeast:			
Metropolitan*	10,943	108	10,132
Nonmetropolitan*	9,910	97	10,216
North Central:			
Metropolitan*	11,560	102	11,333
Nonmetropolitan*	9,056	93	9,730
South:			
Metropolitan*	10,938	96	11,394
Nonmetropolitan*	7,498	85	8,821
West:			
Metropolitan*	11,203	103	10,877
Nonmetropolitan*	8,981	94	9,554
SMSA's			
Boston	11,654	112	10,405
Buffalo	10,500	107	9,813
Hartford	12,461	109	11,432
Lancaster	9,937	97	10,244
New York	11,005	112	9,826
Philadelphia	10,911	102	10,697
Pittsburgh	9,737	96	10,143
Portland, Maine	9,532	101	9,438
Cedar Rapids	10,721	101	10,615
Champaign-Urbana	10,147	102	9,948
Chicago	12,103	104	11,638
Cincinnati	10,307	97	10,626
Cleveland	11,592	104	11,146
Dayton	11,387	95	11,986
Detroit	12,264	99	12,388
Green Bay	10,300	97	10,619
Indianapolis	10,884	103	10,567
Kansas City	10,653	100	10,653
Milwaukee	11,532	107	10,778
Minneapolis-St. Paul	11,903	101	11,785
St. Louis	10,584	100	10,584
Witchita, Kansas	9,425	96	9,818
Atlanta	10,785	91	11,852
Austin	9,293	87	10,682
Baltimore	10,661	98	10,879
Baton Rouge	9,631	92	10,468
Dallas	10,462	93	11,249
Durham	8,710	96	9,073
Houston	10,226	91	11,237
Nashville	9,218	92	10,020
Orlando	8,901	90	9,890
Washington, D.C.	13,004	103	12,625
Bakersfield	9,933	96	9,305
Denver	10,896	97	11,233
Los Angeles-Long Beach	11,091	102	10,874
San Diego	10,150	99	10,253
San Francisco-Oakland	11,956	108	11,070
Seattle-Everett	11,896	105	11,330

* The metropolitan areas within regions include only that portion of the metropolitan area for which BLS budget data are available. The median income estimates were prepared by the author. The estimates of median income for the nonmetropolitan areas were also prepared by the author and are unofficial.

The Bureau of Labor Statistics (BLS) has sought to examine interarea differences in the cost of living by preparing periodic estimates of the cost of three budget levels for 39 selected metropolitan areas and for four nonmetropolitan regions. The costs of the budgets are estimated for several types of families. The three budget levels are described as "lower," "intermediate," and "higher." The estimated interarea differences are associated with the level of the budget; the differences are smallest for the "lower" budget and greatest for the "higher" budget. Area differences can be attributed to either price differences or differences in the composition of the market basket that was priced in each area. Variations in the composition of the market basket are intended to reflect regional differences in tastes (e.g., pork versus beef) and differences over which the individual family has little or no control (e.g., fuel requirements, cold weather clothing). Although the BLS budgets were developed for the specific purpose of measuring interarea differences in living costs, the data should be used with caution. 4/ In addition to the conceptual problems mentioned above, some of the sample sizes are relatively small.

Table 3 shows 1969 cost of living and income data for the areas for which BLS living costs data are available. The BLS data suggest that sizeable cost of living differences do exist. On a regional basis the cost of living index ranges from 85 in the nonmetropolitan South to 108 in the metropolitan Northeast. Among SMSA's, the range is from 87 in Austin to 112 in both Boston and New York.

A second source of data which is of interest in examining interarea cost differences is the 1970 census data on the housing costs of renters (no data were collected on the housing costs of homeowners). The measure of housing costs chosen was gross rent per room which is the contract rent (the monthly rent regardless of any furnishings, utilities, or services that may be included) plus the cost of utilities and fuels not included in the contract rent. The gross rent figures do not take into account quality differences and must be viewed as crude indicators. The universe of renters was restricted to those with incomes between $4000 and $4999 in an effort to introduce some control into the interarea comparisons.

Table 4 shows very substantial interarea differences in the housing costs of renters. The monthly cost per room ranges from $15 in the nonmetropolitan South to $32 in the metropolitan Northeast.

At the SMSA level at least, the data in Tables 3 and 4 do not support the hypothesis that interarea income differences are a good proxy for interarea cost of living differences. Table 3 shows a number of instances in which a particular SMSA has both a higher median income and a lower cost of living than another SMSA. For example, the 1969 median family income in the Buffalo SMSA was $10,500 and the BLS cost of living index was 107 while the Atlanta SMSA had a median family income of $10,785 and a BLS cost of living index of 91. On an SMSA basis, the squared correlation coefficient was 0.41 between median family income and the BLS cost of

TABLE 4. Median Gross Rent Paid by Families and Primary Individuals with Incomes of $4,000 to $4,999: 1969

Area	Median Gross Rent	Mean Room Size	Median gross Rent / Mean room size
United States	$ 96	4.0	$24
Metropolitan	102	3.8	27
Nonmetropolitan	79	4.4	18
Northeast	99	4.0	25
Metropolitan	100	3.1	32
Nonmeropolitan	91	4.7	19
North Central	99	4.1	24
Metropolitan	105	3.9	27
Nonmetropolitan	85	4.6	18
South	84	4.1	20
Metropolitan	94	3.9	24
Nonmetropolitan	68	4.4	15
West	108	3.7	29
Metropolitan	112	3.6	31
Nonmetropolitan	89	4.1	22
SMSA's			
Boston	119	3.9	31
Buffalo	94	4.6	20
Hartford	127	3.9	33
Lancaster	88	4.6	19
New York	99	3.5	28
Philadelphia	96	4.1	23
Pittsburgh	89	4.0	22
Portland, Maine	92	3.9	24
Cedar Rapids	110	3.7	30
Champaign-Urbana	119	3.9	31
Chicago	116	3.8	31
Cincinnati	89	3.6	25
Cleveland	105	4.1	26
Dayton	110	4.1	27
Detroit	106	4.1	26
Green Bay	101	4.1	25
Indianapolis	102	3.9	26
Kansas City	97	3.9	25
Milwauke	109	4.0	27
Minneapolis-St. Paul	120	3.5	34
St. Louis	96	3.7	26
Witchita, Kansas	93	4.1	23
Atlanta	99	4.0	25
Austin	102	3.7	28
Baltimore	104	4.3	24
Baton Rouge	87	4.0	22
Dallas	104	3.8	27
Durham	93	4.1	23
Houston	96	3.8	25
Nashville	91	4.0	23
Orlando	102	4.1	25
Washington, D.C.	120	3.6	33
Bakersfield	83	4.2	20
Denver	106	3.6	29
Los Angeles-Long Beach	110	3.4	32
San Diego	119	3.7	32
San Francisco-Oakland	126	3.4	35
Seattle-Everett	117	3.5	33

living index, and 0.45 between median family income and gross rent per room.

The association between median family income and the BLS cost of living index is much stronger on a metropolitan/nonmetropolitan basis. In each of the four census regions, both income and living costs were substantially lower in the nonmetropolitan areas than in the metropolitan areas. On a region by residence basis (four regions with two residential classifications each), the squared correlation coefficient between median family income and the BLS cost of living index was 0.77. Even at this level, however, certain problems are evident. The data show that the metropolitan South had a substantially higher median income and a slightly lower cost of living index than the nonmetropolitan Northeast.

Even if it could be demonstrated that a strong relationship existed, at a single point in time, between income level and living costs, the possibility that the rate of growth in real income will vary by region or residence would make the use of subnational medians questionable. Table 5 shows the percent changes in median family income and the consumer price index (all items and housing) for selected SMSA's over the period 1959-1969.

TABLE 5. Percent Changes in Income and Prices in Selected SMSA's: 1959 to 1969

SMSA	Percent change from 1959 to 1969		
	Median family Income	Consumer price Index - all items	Consumer price Index - housing
Boston	74.3	29.9	31.1
New York	68.1	29.4	28.4
Pittsburgh	63.5	24.6	23.6
Philadelphia	69.6	27.7	24.4
Chicago	64.8	22.9	19.1
Cincinnati	63.1	23.1	18.5
Cleveland	66.5	25.0	21.2
Detroit	79.7	26.5	24.9
Kansas City	68.6	27.7	22.3
Milwaukee	64.9	23.0	20.6
Minneapolis-St. Paul	74.0	25.5	26.6
St. Louis	68.7	25.2	19.9
Atlanta	87.3	25.1	28.0
Baltimore	72.0	25.6	22.0
Houston	69.3	25.6	24.9
Washington, D.C.	71.6	28.1	24.2
Los Angeles-Long Beach	57.0	25.2	29.9
San Francisco-Oakland	68.6	28.0	35.8
Seattle-Everett	72.5	25.8	29.4

The figures show that the rate of growth in real median family income was greatest in the Atlanta SMSA and least in the Los Angeles-Long Beach SMSA. If a poverty definiton based on SMSA median income had been in use during the decade, the poverty threshold in the Atlanta SMSA would have risen sharply relative to the threshold in the Los Angeles-Long Beach SMSA in spite of the fact that prices rose at about the same rate in each area. Again, the data suggest that the use of subnational medians is not a satisfactory substitute for obtaining direct measures of interarea cost of living differences.

CONCLUSION

It has been suggested that a poverty measure be adopted which would count as poor those families whose incomes are below some fixed pro portion of median family income. The evidence in this paper indicates that such a poverty measure would have the effect of identifying as poor a nearly fixed proportion of the population. In the absence of significant shifts in the income distribution, the proportion of the population in poverty would not be lowered by a growth in the average level of real income.

One of the interesting features of a definition based on median income is the possibility of introducing interarea differentials through the use of subnational medians. There is widespread concern that poverty thresholds should be adjusted to account for interarea differences in living costs, but it has not been possible to make these adjustments because the existing measures of interarea living costs are not considered satisfactory. It is argued that sampling errors are very high for certain areas and, more importantly, certain important conceptual difficulties have not been solved.

Even though the application of a single national poverty standard causes some inequities, the data in Table 3 suggest that the adoption of a poverty standard based on subnational medians would create its own inequities. If, for example, poverty thresholds depended upon the median income level within SMSA's, poverty thresholds would be higher in Detroit than in Buffalo even though the BLS data indicate that Detroit has a lower cost of living. The only realistic way of introducing interarea differentials into a poverty definition is to develop a survey which will produce acceptable data on interarea differences in living costs.

FOOTNOTES

1. Mollie Orshansky, "Counting the Poor: Another Look at the Poverty Profile," Social Security Bulletin, January 1965.

2. Robert Kilpatrick, "The Income Elasticity of the Poverty Line," The Review of Economics and Statistics, August 1973.

3. Victor Fuchs, "Toward a Theory of Poverty," in The Concept of Poverty, Task Force on Economic Growth and Opportunity, U.S. Chamber of Commerce, 1965.

4. Mark Sherwood, "Family Budgets and Geographic Differences in Price Levels," Monthly Labor Review, April 1965.

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